

Electronic Home Entertainment Equipment Installers and Repairers

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Significant Points

- Employment is expected to grow more slowly than the average for all occupations, because it often is cheaper to replace equipment than to repair it.
- Job opportunities will be best for applicants with knowledge of electronics and with related hands-on experience.

Nature of the Work

Electronic home entertainment equipment installers and repairers, also called *service technicians*, repair a variety of equipment, including televisions and radios, stereo components, video and audio disc players, video cameras, and video recorders. They also install and repair home security systems, intercom equipment, satellite television dishes, and home theater systems, which consist of large-screen televisions and sophisticated surround-sound audio components.

Customers usually bring small, portable equipment to repair shops for servicing. Repairers at these locations, known as *bench technicians*, are equipped with a full array of electronic tools and parts. When larger, less mobile equipment breaks down, customers may pay repairers to come to their homes. These repairers, known as *field technicians*, travel with a limited set of tools and parts, and attempt to complete the repair at the customer's location. If the job is complex, technicians may bring defective components back to the shop for thorough diagnosis and repair.

When equipment breaks down, repairers check for common causes of trouble, such as dirty or defective components. Many repairs consist simply of cleaning and lubricating equipment. If routine checks do not locate the trouble, repairers may refer to schematics and manufacturers' specifications that provide instructions on how to locate problems. Repairers use a variety of test equipment to diagnose and identify malfunctions. Multimeters detect short circuits, failed capacitors, and blown fuses by measuring voltage, current, and resistance. Color-bar and dot generators provide onscreen test patterns, signal generators to test signals, and oscilloscopes and digital storage scopes to measure complex waveforms produced by electronic equipment. Repairs may involve removing and replacing a failed capacitor, transistor, or fuse. Repairers use handtools such as pliers, screwdrivers, soldering irons, and wrenches to replace faulty parts. They also make adjustments to equipment, such as focusing and converging the picture of a television set or balancing the audio on a surround-sound system.

Improvements in technology have miniaturized and digitized many audio and video recording devices. Miniaturization has made repairwork significantly more difficult, because both the components and the acceptable tolerances are smaller. For example, an analog video camera operates at 1800 revolutions per minute (rpm), while a digital video camera may operate at 9,000 rpm. Also, components now are mounted on the surface of circuit boards, instead of plugged into slots, requiring more precise soldering when a new part is installed. Improved technologies have lowered the price of electronic home entertainment equipment, to the point where customers often replace broken equipment instead of repairing it.

Working Conditions

Most repairers work in well-lighted electrical repair shops. Field technicians, however, spend much time traveling in service vehicles and working in customers' residences.

Repairers may have to work in a variety of positions and carry heavy equipment. Although the work of repairers is comparatively safe, they must take precautions against minor burns and electric shock. Because television monitors carry high voltage even when they are turned off, repairers need to discharge the voltage before servicing such equipment.

Employment

Electronic home entertainment equipment installers and repairers held about 43,000 jobs in 2002. Most repairers worked in electronics and appliance stores that sell and service electronic home entertainment products or in electronic and precision equipment repair and maintenance shops. About 1 electronic home entertainment equipment installer and repairer in 4 was self-employed, more than 4 times the proportion for all installation, maintenance, and repair occupations.

Training, Other Qualifications, and Advancement

Employers prefer applicants who have basic knowledge and skills in electronics. Applicants should be familiar with schematics and have some hands-on experience repairing electronic equipment. Many applicants gain these skills at vocational training programs and community colleges. Training programs should include both hands-on experience and theoretical education in digital consumer electronics. Entry-level repairers may work closely with more experienced technicians, who provide technical guidance.

Field technicians work closely with customers and must have good communication skills and a neat appearance. Employers also may require that field technicians have a driver's license.

Various organizations offer certification for electronic home entertainment equipment installers and repairers, including ACES International, the Custom Electronic Design and Installation Association, the Electronic Technicians Association International, and the International Society of Certified Electronics Technicians. Repairers may specialize in a variety of skill areas, including consumer electronics. To receive certification, repairers must pass qualifying exams corresponding to their level of training and experience.



Most electronic home entertainment equipment installers and repairers work in retail stores or repair shops.

Experienced repairers with advanced training may become specialists or troubleshooters, helping other repairers diagnose difficult problems. Workers with leadership ability may become supervisors of other repairers. Some experienced workers open their own repair shops.

Job Outlook

Employment of electronic home entertainment equipment installers and repairers is expected to grow more slowly than average through 2012, due to decreased demand for repair work. In addition to job openings arising from employment growth, some will also result from the need to replace workers who retire or who transfer to higher paying jobs in other occupations requiring electronics experience. Opportunities will be best for applicants with hands-on experience and knowledge of electronics.

The need for repairers is expected to grow slowly because home entertainment equipment is less expensive than in the past. As technological developments have lowered the price and improved the reliability of equipment, the demand for repair services has slackened. When malfunctions do occur, it often is cheaper for consumers to replace equipment rather than to pay for repairs.

Employment growth will be spurred somewhat by the introduction of sophisticated digital equipment, such as DVDs, digital televisions, and digital camcorders. So long as the price of such equipment remains high, purchasers will be willing to hire repairers when malfunctions occur.

Earnings

Median hourly earnings of electronic home entertainment equipment installers and repairers were \$13.08 in 2002. The middle 50 percent earned between \$10.20 and \$17.00. The lowest 10 percent earned less than \$8.18, and the highest 10 percent earned more than \$21.48. In 2002, median hourly earnings of electronic home entertainment equipment installers and repairers were \$12.73 in electronics and appliance stores and \$11.99 in electronic and precision equipment repair and maintenance.

Related Occupations

Other workers who repair and maintain electronic equipment include broadcast and sound engineering technicians and radio operators; computer, automated teller, and office machine repairers; electrical and electronics installers and repairers; and radio and telecommunications equipment installers and repairers.

Sources of Additional Information

For information on careers and certification, contact:

- ACES International, 5241 Princess Anne Rd., Suite 110, Virginia Beach, VA 23462. Internet: <http://www.acesinternational.org>
- Custom Electronic Design and Installation Association, 7150 Winton Dr., Suite 300, Indianapolis, IN 46268. Internet: <http://www.cedia.org>
- Electronics Technicians Association International, 5 Depot St., Greencastle, IN 46135.
- International Society of Certified Electronics Technicians, 3608 Pershing Ave., Fort Worth, TX 76107-4527. Internet: <http://www.iscet.org>